

We claim:

1 1. A therapeutic element comprising:
2 an elongate solid member;
3 radioactive seed elements;
4 said radioactive seed elements dispersed within said elongate
5 solid member.

1 2. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is axially rigid and radially flexible.

1 3. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is sufficiently axially rigid to prevent jamming or
3 collapsing while being pushed out of a needle.

1 4. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member has sufficient radial flexibility to maintain locational
3 accuracy relative to a tumor target as said tumor target shrinks in size.

1 5. The therapeutic element set forth in claim 1 wherein the
2 thickness of said elongate solid member around said radioactive seeds is
3 sufficient to decrease normal tissue necrosis from a high local dose of
4 radiation.

1 6. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is longitudinally flexible.

1 7. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is impregnated with a hormone.

1 8. The therapeutic element set forth in claim 1 wherein said

10035083-122604

1 elongate solid member is impregnated with a drug.

1 9. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements are positioned at various intervals along the
3 length of said elongate solid member.

1 10. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements contain a hormone.

1 11. The therapeutic element set forth in claim 1 wherein said
2 radioactive seed elements contain a drug.

1 12. The therapeutic element set forth in claim 1 wherein said
2 radioactive seeds contain a compound or element that emits photonic
3 radiation having a low energy and a short half-life.

1 13. The therapeutic element set forth in claim 1 wherein said
2 radioactive seeds contain an isotope consisting of the group iodine 125,
3 palladium 103, iridium 192, cesium 131, gold 198 yttrium 90 and
4 phosphorus 32.

1 14. The therapeutic element set forth in claim 1 wherein said
2 elongate member is composed of a bio-absorbable material.

1 15. The therapeutic element set forth in claim 1 wherein said
2 elongate member is composed of a bio-absorbable material absorbed by
3 living tissue within about 70 to 120 days.

1 16. The therapeutic element set forth in claim 1 wherein the bio-
2 absorbable material is selected from the group consisting of polymers and
3 copolymers of glycolide, lactide and polydioxanone.

1 17. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is echogenic.

1 18. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member has air bubbles.

1 19. The therapeutic element set forth in claim 1 wherein said
2 elongate solid member is laterally flexible.

1 20. A therapeutic element comprising:
2 an elongate, axially rigid and radially flexible member;
3 radioactive seed elements;
4 said radioactive seed elements dispersed within said elongate
5 member.

1 21. The therapeutic element set forth in claim 20 wherein said
2 axially rigid and radially flexible member is continuous.

1 22. A therapeutic element comprising:
2 an elongate axially rigid and radially flexible member;
3 radioactive seed elements;
4 hormone impregnated seed elements;
5 said radioactive seed elements and said hormone
6 impregnated seed elements dispersed within said elongate axially
7 rigid and radially flexible member.

1 23. The therapeutic element set forth in claim 22 wherein said
2 axially rigid and radially flexible member is continuous.

1 24. A therapeutic element comprising:

an elongate axially rigid and radially flexible member;
radioactive seed elements;
drug impregnated seed elements;
said radioactive seed elements and said drug impregnated
seed elements dispersed within said elongate axially rigid and radially
flexible member.

25. The therapeutic element set forth in claim 24 wherein said
axially rigid and radially flexible member is continuous.

26. A therapeutic element comprising;
an elongate, axially rigid and radially flexible member;
one of a hormone and a drug;
said one of hormone and said drug implanted in the elongate
axially rigid and radially flexible member.

27. The therapeutic element set forth in claim 29 wherein said one
of a hormone and a drug is dispersed along the length of said elongate,
axially rigid and radially flexible member.

28. A therapeutic element comprising:
an elongate axially rigid member;
said elongate axially rigid member not having sufficient rigidity
to be driven into a tumor without deflection;
radioactive seed elements;
said radioactive seed elements dispersed within said elongate
solid member.

29. A brachytherapy device comprising:
a therapeutic element, including an elongate, axially rigid and
radially flexible member;

1 a needle with a lumen;
2 a plug in the end of said needle;
3 wherein said therapeutic element is positioned inside said
4 lumen of said needle.

1 30. The brachytherapy device set forth in claim 29 wherein said
2 elongate, axially rigid and radially flexible member is continuous.

1 31. The brachytherapy device set forth in claim 29 wherein said
2 elongate solid member is a close fit to the needle lumen.

1 32. The brachytherapy device set forth in claim 29 wherein the fit
2 between said elongate solid member and said needle prevents collapse of
3 said therapeutic element as said therapeutic element is passed through said
4 needle.

1 33. The brachytherapy device set forth in claim 29 wherein said
2 plug is bio-compatible.

1 34. A method for making a therapeutic element comprising, in any
2 order:
3 dispersing radioactive seed elements within a molding cavity;
4 and
filling the molding cavity with a bio-absorbable polymer;

1 35. The method for making a therapeutic element set forth in
2 claim 34 wherein said molding cavity is shaped to the desired final
3 dimensions of said therapeutic element.

1 36. The method for making a therapeutic element set forth in
2 claim 34 wherein said molding cavity spaces said radioactive seeds at

1 appropriate intervals.

1 37. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer is introduced into said mold at a temperature
3 greater than the melt point of said polymer.

1 38. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer surrounds said radioactive seeds.

1 39. The method for making a therapeutic element set forth in
2 claim 34 wherein said polymer fills the spaces between said seeds.

1 40. The method for making a therapeutic element set forth in
2 claim 34 wherein said bio-absorbable polymer is impregnated with a
3 hormone.

1 41. The method for making a therapeutic element set forth in
2 claim 34 wherein said bio-absorbable polymer is impregnated with a drug.

1 42. A method of brachytherapy comprising:
2 loading a needle with a therapeutic device;
3 inserting said needle into the therapeutic site into the most
4 distal location from the insertion point;
5 inserting a stylet into said needle;
6 gradually pulling on said needle while maintaining the stylet
7 stationary relative to the axial movement of said needle;
8 and dispensing said therapeutic device.

1 43. The method of brachytherapy set forth in claim 42 wherein the
2 overall diameter of said therapeutic element is sufficient to prevent collapse
3 within the needle lumen.

1 44. The method of claim 43 wherein said therapeutic device is an
2 elongated solid member having spaced radioactive seeds.

1 45. The method of claim 43 wherein said therapeutic device is an
2 elongated axially rigid and radially flexible member having spaced
3 apart radioactive seeds.

1 46. The method of claim 43 wherein said therapeutic device is an
2 elongated member formed of a bio-absorbable material into which
3 are positioned a plurality of spaced apart radioactive seeds.

1 47. The method of claim 43 wherein said therapeutic device is an
2 elongated member is comprised of a plurality of spaced apart
3 radioactive seeds which are encapsulated in a bio-absorbable
4 material.

1 48. The method of claim 47 wherein said bio-absorbable material is a
2 polymer.

1 49. The element of claim 1 wherein said member has a durometer in the
2 range of about 20 to about 80.

1 50. The element of claim 1 wherein said member has a durometer in the
2 range of about 20 to about 40.

1 51. The element of claim 20 wherein said member has a durometer in the
2 range of about 20 to about 80.

1 52. The element of claim 20 wherein said member has a durometer in the
2 range of about 20 to about 40.

1 53. The element of claim 28 wherein said member has a durometer in the
2 range of about 20 to about 80.

1 54. The element of claim 28 wherein said member has a durometer in the
2 range of about 20 to about 40.

1 55. A prescription method of treating tissue comprising the steps of:
2 first creating a tissue treatment plan for the tissue to be treated, which
3 treatment plan specifies the a number and spacing of treatment seeds to be
4 provided in a strand; and
5 second creating a treatment strand by molding treatment seeds in a
6 material.

1 56. The method of claim 55 wherein:
2 said first creating step is performed by a person treating a patient;
3 and
4 said second creating step is performed by an entity that fills
5 prescriptions by forming the strand, which entity fills prescriptions from a
6 plurality of patients.

1 57. The method of claim 55 wherein:
2 wherein said first creating step specifies radioactive seeds and
3 optimal spacings between each pair of seeds; and
4 wherein said second creating step creates strands to the specified
5 optima spacings prescribed.

1 58. The method of claim 57 wherein:
2 said second creating step is performed positioning radioactive seeds
3 in a mold at the optimal spaces and pouring in a material to mold the
4 radioactive seeds in place.

10035083-132801

- 1 59. The method of claim 58 wherein:
2 said material that is poured is a bio-absorbable material.
- 1 60. The method of claim 59 wherein:
2 said material that is poured in is a polymer material.
- 1 61. The method of claim 55 wherein:
2 said first creating step uses imaging devices for creating a treatment
3 plan.
- 1 62. The method of claim 55 including:
2 receiving said treatment strand and implanting the treatment strand
3 adjacent to the tissue to be treated.
- 1 63. The method of claim 55 including the step of using heated treatment
2 seeds.
- 1 64. The method of claim 42 including the step of using heated treatment
2 seeds.
- 1 65. The therapeutic element set forth in claim 1 wherein said elongated
2 member is composed of a bio-absorbable material which is absorbed
3 when the half-life of the radioactive seed elements is reached.
- 1 66. The therapeutic element set forth in claim 20 wherein said elongated
2 member is composed of a bio-absorbable material that is absorbed
3 when the half-life of the radioactive seed elements is reached.
- 1 67. The therapeutic element set forth in claim 28 wherein said elongated
2 member is composed of a bio-absorbable material that is absorbed

10035083 122804

- 1 when the half-life of the radioactive seed elements is reached.
- 1 68. The therapeutic element of claim 1 wherein said therapeutic element
2 is steam sterilizable.
- 1 69. The therapeutic element of claim 20 wherein said therapeutic
2 element is steam sterilizable.
- 1 70. The therapeutic element of claim 22 wherein said therapeutic
2 element is steam sterilizable.
- 1 71. The therapeutic element of claim 24 wherein said therapeutic
2 element is steam sterilizable.
- 1 72. The method of claim 42 wherein the therapeutic device is steam
2 sterilized prior to usage.
- 1 73. The therapeutic element of claim 1 wherein the radioactive seed
2 element is bio-absorbable.
- 1 74. The therapeutic element of claim 20 wherein the radioactive seed
2 element is bio-absorbable.
- 1 75. The therapeutic element of claim 1 wherein the radioactive seed
2 element also contains a drug and wherein the seed element is bio-
3 absorbable.
- 1 76. The therapeutic element of claim 20 wherein the radioactive seed
2 element also contains a drug and wherein the seed element is bio-
3 absorbable.

1 77. The therapeutic element of claim 26 wherein said one of said
2 hormone and said drug is encapsulated in a biodegradable seed.

1 78. The therapeutic element of claim 26 wherein said one of said
2 hormone and said drug is encapsulated in a biodegradable seed
3 along with radioactive elements.

add
pr

add
C1

10035083-122301